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JOHN DE PECKHAM

BY

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THE subject of this memoir has been claimed by many as the first English author of a work on optics and as the discoverer of concave lenses. His fame is, however, so largely overshadowed by that of his great contemporary, Roger Bacon, that many will dispute his title. We have tried by a study of his life to show the possibility of interaction between them and to form some estimate of Peckham's influence on the science of his time.

The foundations of optics were laid by Euclid in the second century B.C. and its superstructure added, bit by bit, often at intervals of several hundred years and in localities as far removed from its original (Alexandria) as Paris and Oxford. Three names stand out in the story, names of men whose views held sway for centuries after their death and many of whose observations are still undisputed. Claudius Ptolemaeus, the Alexandrian astronomer, remained a name to conjure with until the fifteenth century. The great Al Hazen exercised an influence even to the time of Kepler, while our own Roger Bacon, himself primarily inspired by the Egyptian, remains to-day the father of modern optics, and indeed of British science in its broadest sense. Bacon's life perhaps exemplifies as well as that of any of his predecessors the lack of contemporary recognition of an original mind. We think

of him as imprisoned, suspected and disgraced, but we must not forget that here and there even among his immediate confrères were some who recognised his genius, and some who also held his views. He did not in reality stand as completely alone in the possession of scientific knowledge as he no doubt did in his whole-hearted devotion to it. Among his contemporaries are two, both churchmen, and one, curiously enough, of his own Franciscan order, to whom his views must have proved acceptable. The one was Pope Clement IV, the enlightened pontiff to whose friendship and protection Bacon owed what little security for work he had, and the other was Friar John, afterwards John Peckham, Archbishop of Canterbury. In the case of the Pope the connection is clear and historically indisputable. In the case of the Prelate it rests on coincidences of time, place and expressed opinion, too strong, as we hope to show, to be ignored.

John Peckham was in many ways a remarkable man, for he showed a rare combination of executive ability and zeal for reform with an eclectic scholarship and a scientific attitude of mind.

The date of his birth is not certainly known. It is given by the Dictionary of National Biography as 1240, but this is not found in Hook's *Lives of the Archbishops of Canterbury,* 1865, and certainly does not tally with the latter's statement that Peckham died in 1294, "in his dotage." His birthplace is also uncertain, though it was undoubtedly in the southern counties, Sussex, Kent and Surrey competing for the honour. Cave, *Hist. Lit.,* says "ex infima stirpe apud Cicestrensis natus." This leads to the idea that he was born at Chichester, of humble parents. Members of a family of the same name were among the benefactors of Lewes Priory, and from the *Annals,* from the birth of Christ to the year 1312, written by a monk of Lewes, we learn that John de Peckham was at one time an inmate of the Priory. This establishment stood on the site of an Anglo-Saxon church dedicated to St. Pancras. William de Warenne, Earl of Surrey, in founding the Priory of Lewes, retained the dedication to St. Pancras, thus indicating that education was to be the prime object of the monks of his new foundation. Here John de Peckham received his education. Parker states "in coenobio de Lewes puerilem instructionem accepit."

From Lewes he went to Oxford. Again the date is doubtful. It is true that his name appears on the register of Merton, but this entry almost undoubtedly refers to his second period of residence at Oxford in the capacity of tutor, since Merton was not founded until 1264. His education was completed at Paris, whence he returned to Oxford and took his D.D. (Sanctae Theologiae Professor). Again we are at a loss for an exact date, but it is probable that his return to Oxford from Paris and his appointment

Jo. Archiepiſcopi Cantuarienſis
Perſpectiua communis.

FIG. 1.

as tutor took place between 1264 and 1270. He was not yet a member of any monastic order, though his education had obviously pointed in that direction from the beginning.

The Franciscan Friars had arrived in England in 1224. Their numbers were at first small, and they were simply lodged in a house of the preaching friars in Holborn. Very soon, however, the reformatory zeal of the order began to attract novices and they were forced to hire a house of their own in Cornhill. The order rapidly gained in popularity, and by 1250 owned numerous religious houses throughout the country and could boast as well the inclusion of some of the most brilliant thinkers of the time within its ranks. Of these for our present purpose we can mention Roger Bacon and Thomas Bungey, both closely associated with Oxford and both remarkable for their scientific leanings. Bacon indeed was already in 1250 engaged at Oxford in the study of experimental physics and astronomy, and it seems not unlikely that Peckham, in his undergraduate days (presumably somewhere between 1250 and 1260), had already come under his influence. It is, however, certain that when Peckham returned from Paris to join his old university in a more official capacity he was immediately attracted to the order and joined it about the time of taking his doctorate. He was then appointed Chief Professor Regent to the Franciscan School, succeeding Thomas Bungey, whose scientific spirit, though little recognised to-day, earned him a place with Bacon in Robert Green's satirical comedy "Frier Bacon and Frier Bongay" three centuries later. To quote Hook, Peckham became "henceforth a vehement, though judicious partisan of his order; his new profession did not take him immediately from Oxford, where he formed one of that phalanx of learned friars, who were labouring, with success, to make their University famous among the schools of Europe. Like Roger Bacon he did not confine himself to theology but studied natural philosophy; he studied anatomy and was acquainted with the geometry of Euclid, the works of Aristotle, and the scientific treatises of the Arabians." We have thus an undisputed link, in thought at least, with the great Friar Roger. Peckham himself was a voluminous writer. Anthony Parkinson, in his history of the Friars Minor in England gives a list of fifty-six works. Of these twelve are still extant, according to Hook. They deal mainly with questions of ecclesiastical law and polity, dogma and heresies, and the majority of them were obviously written later in life after his second visit to the Continent in 1277. Three of them, however, *De Sphaera, Theorica Planetarum* and *Perspectiva Communis,* are purely scientific and belong to an entirely different category. The first two are astronomical treatises, the third is said to be the first text book on optics of English authorship, and as such was in constant

use as an undisputed authority until well into the 16th century. The exact date of its appearance is unknown, but in view of the fact that (as we shall explain later) after 1277 Peckham's life was an extremely busy and public one and that his entire activities seem to have been devoted to questions of church government, reform and politics, it seems extremely probable that these scientific works, which show both practical knowledge and a scientific attitude in advance of his time, were produced during the earlier years of quiet and uninterrupted study in Paris and Oxford. It is of interest that Bacon's *Opus majus* was completed in 1267, and that he then returned to Oxford, where he was engaged on a much larger work which occupied him until his imprisonment by Jerome of Arcoli in 1278. It is thus certain that Bacon and Peckham had ample opportunity for exchange of ideas since Peckham is known to have been in Oxford in 1275-6, and probably for five or six years before that. If in addition we admit the possibility of a meeting in Paris during Peckham's student days (Bacon was in Paris from 1256 to 1267), and a possible earlier contact at Oxford in 1250 the inference of interaction between the already ripening scholar and the impressionable youth from Lewes Priory becomes almost irresistible. The course of events subsequent to 1277 is conditioned by the characters of the two men. Bacon stands out as the whole-hearted investigator of truth, ready to suffer ignominy, persecution and disgrace if he can but continue his work, but Peckham is the active man of affairs, reformer, statesman and orator, and is inevitably distracted from the pursuit of scientific truth by an ever-widening sphere of administrative and political activity. This becomes apparent in 1277, when he is appointed Provincial Minister of the Franciscans for England, a position of both honour and responsibility. Thereafter his career is one of church preferment, semi-political intrigue and active and ardent reform; that ardour for abstract truth which had produced *De Sphaera* and *Perspectiva* made itself manifest as an uncompromising partisanship of justice and morality, and carried with it the inevitable consequence of friction and strife. Peckham was a stern man, intolerant of differences of opinion and disobedience. But if harsh to others he was equally severe with himself. "A tempore consecrationis suae ab esu carnium abstinuit," says the Chronicle of Lanercost. He set himself to correct abuses which already existed and to guard against others which soon after his time proved detrimental, if not fatal to the usefulness of his order.

The English Franciscan province was divided into seven districts, each with a custos, who was subordinate to the provincial minister. John de Peckham was the 9th (or according to Parkinson the 12th) provincial minister of the order in England. As such he went to live in 1277 in the Metropolis, where the Grey

Friars stood, on the site of the present General Post Office. Both Roger Bacon and Peckham contended against the narrow views of their superiors, who were antagonistic to learning, and Peckham is said to have been instrumental in founding the Greyfriars library. It was not completed until nearly a century later when it was rescued from decay by the munificence of Whittington.

Hook states that "as a leading man in his order, ambition was now satisfied." But Peckham found it essential, if he was to succeed in the correction of abuses, to have some knowledge of civil canon law. This subject was not in favour at Oxford, and he went immediately to study in Italy. His way led him through Paris and Lyons, at which latter place he was endowed with a canonry—a preferment which is said to have remained with the see of Canterbury for two centuries. At Rome his eloquence and ability attracted the attention of Nicholas III, who appointed him *Causarum Auditor* and *Lector Palatii,* but obliged him to resign the position of Provincial of England. He held office in Rome for two years, his duty being, among other things, to dispute with heretics who were summoned to Rome to substantiate their heretical doctrines. Peckham was at Rome when the Archbishop of Canterbury, Robert Kilwardby, arrived to assume his place in the *curia* as a cardinal, and Peckham "sore against his inclinations" (Angl. Sacra, Pt. I, p. 117), was appointed to succeed him as Archbishop. This appointment was a bit of papal usurpation, and how it was that the appointment was not resented and resisted by Edward the First does not appear. The chapter at Canterbury had already elected Robert Burnell, Chancellor of England and Bishop of Bath and Wells, but Hook states that Burnell made no objection as he probably found it more convenient to have a theologian than a statesman as Archbishop. Peckham was unwilling to take the post, but he had to yield and he was consecrated by the Pope on February 10, 1279. No sooner was he enthroned at Canterbury than the Pope sent in his little bill for 5,000 marks for board and lodging while Peckham was at Rome. To this bill Peckham demurred. He described it as "horribilis in aspectu et auditu terribilis." His predecessor, Kilwardby, had emptied the treasury at Canterbury of all the ready money to meet the expenses of his Cardinalate: the last year's rents had been taken into the king's hands. The Pope treated his demur with derision: payment was demanded and excommunication was threatened, but finally Peckham was given a year's grace to find the money. Meanwhile Kilwardby had died intestate, and the Pope claimed the administration of his goods. Peckham sent a lawyer to Rome to claim the 5,000 marks as a debt due to the see of Canterbury, or that failing, to propose that this sum should be set off against the demand against himself. But he was not so fortunate as to get

round the Pope; both the Popes and the mendicant orders were more used to receiving than paying, and His Holiness claimed the whole sum to give to the poor and for other pious uses.

Peckham was rather a thorn in the side of Edward I. The Archbishop's first act was to convene a synod at Reading in 1279 without first obtaining the royal sanction. Edward haled the Archbishop before Parliament and compelled him to revoke all the constitutions which had been passed to the prejudice of the royal prerogative or contrary to the rights and customs of the realm. It was natural that Peckham should have opposed the Statute of Mortmain, but of course his opposition had no effect. Hook states that Peckham, "though not instigating, did not oppose the severe methods adopted by Edward against the Jews." In ecclesiastical matters he was a stern disciplinarian, and diligent in holding visitations. At Chichester he sentenced a priest convicted of immoral conduct to three years' penance as well as enjoining a pilgrimage to Rome, Cologne and Compostella. At Salisbury he was for excommunicating a knight, but relaxed the sentence on condition that the offender should be publicly whipped in the church at Shaftesbury, and that he should perform a pilgrimage to the Holy Land. At Lewes he appeared in a rather more pleasant frame of mind, since he behaved with kindness and dined with the monks off their humble fare in the garb of a mendicant.*

*To show that John de Peckham was, for the age in which he lived, a broad-minded man, the following story from his register may be cited. A man was attacked by robbers and was found by neighbours at the point of death; he died before a priest could be brought to him and was buried in the high road. At this early date there was an intense horror of intestacy. The idea was that a man dying without having uttered his "novissima verba," or last words, before a priest, died unconfessed and was therefore unfit for burial in consecrated ground. As time went by men learnt to discriminate between the case of a man who met with sudden death, *subita et inpreparata morte,* and the obstinate party, who, lying sick, refused to utter his "'novissima verba," and make his confession, and died "desperate," as the saying was. In the present case the man was buried in the high road almost as a malefactor; but Peckham took a merciful view of the case:—"It is said that the poor wretch asked for a priest; if this can be proved, let his body be exhumed and buried in Christian fashion, for he did what he could towards making a testament." Before this order could be executed, the rector of Ightham died suddenly. The Archbishop ordered his commissary and the rector of another parish to take possession of the dead man's goods. His debts were to be paid, and the residue was to be disposed of according to the Archbishop's orders for the benefit of the departed.

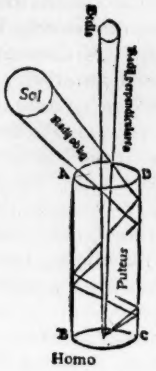
It will be remembered that Peckham's predecessor as Archbishop had died intestate at Rome, and that the Holy Father had promptly annexed his goods together with a large sum of money which, in Peckham's view, belonged to the see of Canterbury, to spend in masses for his soul and other pious works. A contrary idea prevailed in Normandy; here the goods of the "desperate," as also those of the suicide, were confiscated to the Duke. The church was entitled to nothing, having done nothing for the man's soul. Perhaps John de Peckham knew of this rule and therefore may have considered that mercy was the best policy, so as to ensure the church getting her perquisites.

In any case this story throws a pleasing sidelight on the Archbishop, and can be set off against the opinion of Trivet, who, in his Annals, described him as *gestus affatusque pompatici.*

John Peckham died on December 8, 1294, according to Hook, though some authorities give the date as two years earlier. His body lies at Canterbury, in the north-west corner of the Martyrdom (the N.W. transept) under a most beautiful altar tomb of grey Sussex marble with pyramidal canopy of carved stone, and his effigy in black bog oak lies upon it. His heart is buried behind the altar of what is now Christ Church, Newgate Street, E.C., formerly the church of the Grey Friars in London. No inscription appears ever to have been placed on the tomb at Canterbury, and there is no record among the cathedral historians of one. Dr. Cotton, of Canterbury, has kindly informed us that Peckham's register is at Lambeth, and that the Canterbury Cathedral library, in his charge, contains only one book by Peckham, *De oculo morali*, printed by A. Sorg at Augsburg in 1475. This is a beautiful example of early printing. There seems to be some doubt as to whether this work is rightly ascribed to Peckham, but Dr. Cotton states that it is attributed to him by the printer and by the authorities of the British Museum.

Of his works, beyond the three scientific treatises which hold special interest for us, those still extant are :—*Quaestiones de Vanitate Rerum Mundanarum, super sententias, lib.* 4; *Quodlibitum; De Vanitate, lib.* 1; *De Paupertate; Questiones de Sacramento Eucharistae; Haereseôn a se Damnatorum, lib.* 1; *Itinerarium Epistolarum, lib.* 1; *De Mysterio Minorum; Constitutiones Provinciales.* His *Collectanea Bibliorum* was printed at Paris in 1514 and reprinted at Cologne in 1541. In addition to his other abilities he seems in his youth to have possessed a streak of artistic genius, and a long poem, "Philomela," often attributed to his teacher in Paris, S. Bonaventura, is undoubtedly by him. His ecclesiastical works were famous at the time, but it is on his *Perspectiva Communis* that his scientific reputation rested. The manuscript is in the British Museum. Three editions were printed —the first in 1480, by Petreus Corneus, at Milan—the second and third in the same year, 1504, at Leipzig and Venice respectively. The work was in regular use as a text book at that time. The illustrations and extracts below are from the Venice edition. The book is arranged in three parts. The title page shows a fine woodcut of the author seated at a desk with three attendant disciples, within a black and white border of Florentine design (Fig. 1). The first part deals with the nature of light, its propagation in straight lines, the structure of the eye and nature of vision. As an example from Part I, Fig. 2 shows the section dealing with the question of the visibility of a star in daylight from the bottom of a well. The portions dealing with the anatomy of the eye are crude, the lens being shown, as in all the Arabian diagrams, in the centre or towards the back of the vitreous (Fig. 3).

The second and third parts of the book deal with the laws of reflection and refraction respectively. Plane and curved surfaces are considered and in the third section apparently occurs the famous mention of concave refracting surfaces, beginning "Concavitate



Prima

aufert intuidonem eorum que ſunt ultra ignem, propter dictam cauſam. Conclu. IX.

VCem fortem ſuper quedam uiſibilia orientem ipſa oculo abſcondere exiſtente loco lucis temperatæ.

¶Hoc patet quoniam luce forti oriente ſuper corpus ſculptum ſubtilibus inciſionibus ſculpturæ non apparêt, inceſſu ſplendoris uiſum occupantis impediente. Similiter multa ſunt que poſita in tenebra uidentur. luci uero expoſita diſparent uel adminus non lucenti:ſicut ſquama piſcium & ignis mediocris:eadem ratione propter exceſſum ſ. fortioris impreſſionis excludentis impreſſiones debiliores. Concl. .X.

VCem fortem multa uiſibilia oſtendere que debilis occultat.

¶Hoc poteſt oſtendi quia que in luce modica non apparent ad fortiorem deducta declarantur. Hec tamen propoſitio præmiſſe uidetur contraria.ſi enim lux fortis abſcondit,qualiter oſtenditur?Sed nota q; lux fortis abſcondit quando p. oportionem eius excedit,quia tunc occupat totam capacitatem ſenſus:aliter non. Concl. .XI.

VCem fortem ex materia flammea radiantem, maiorem in nocte quam in die & de longe quam de prope infallanter apparere.

FIG. 2.

FIG. 3.

diaphani densioris ad oculum versa accidit converso illi quod contingit conversa ad oculum convexitate."

Whether this remark antedates their mention by Bacon in his *Perspectiva* is a moot point. On both Bacon and Peckham the influence of Al Hazen is predominant, but both have surpassed their master and along the same lines. Some writers even go so far as to claim for the Prelate the priority of discovery. Hirschberg (Geschichte der Augenheilk. in Europ. Mittelalter. Graefe-

Saemisch Handbuch, p. 281) states "die Brillen für Kurzsichtigkeit kamen erst um die Mitte des 16ste Jahrhunderts auf. Papst Leo X ist in 1457 mit seinem Konkav-glas von Rafael gemalt worden. In der Perspectiva Communis von Joannes Archiepisc. Cantuar., 1542, werden sie erlautert." Dr. Charles Singer also notes the coincidence and considers Peckham as possibly directly influenced by Bacon. He says of the former in Vol. II. of his Studies in the History and Method of Science, 1921, that "his views are mainly derived from Al Hazen, though perhaps partly from Bacon. His work was important as having drawn wide attention to optical principles, and from the fact that he refers to the possibility of concave glasses."

We have done our best to show that in coincidences of time and place we have much to support the intrinsic evidence of interaction between the two philosophers, though the final proof of priority of discovery, the date of publication, must of necessity be always lacking in data given to the world in manuscript only. In any case it is pleasant to reflect that, in spite of the accumulation of ignorance and prejudice which was the burden of the Middle Ages, there were already here and there men whose search for truth and whose interchange of ideas laid the foundation for our later learning and whose attitude of mind and practical knowledge bore a much greater resemblance to our own than we sometimes stop to think.

CATERPILLAR HAIR OPHTHALMITIS (OPHTHALMIA NODOSA)

BY

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CASES of serious damage to the eyes as a result of penetration by caterpillar hairs, are well recognised, but are of considerable rarity. It is worth while, therefore, to report the following case which recently came under my care.

A boy, aged 12 years, came to the Moorfields Eye Hospital on May 30, 1928, with a sore right eye. His tale was that whilst at play fourteen days previously, another boy threw a caterpillar at him, which struck him in the eye. He was an intelligent boy, and when asked what caterpillar it was, immediately said a "woolly bear." He was at once admitted to hospital.

On examination his right eye was greatly inflamed, with a general diffuse injection of all the ocular vessels; there was no staining of the cornea. The anterior chamber was about a quarter full of pus, and numerous fine deposits were present on the back of the cornea. The pupil dilated freely. There was intolerance of

light, which made examination a little difficult; sight was greatly impaired.

On examination with a corneal lens, three hairs, evidently from the caterpillar, were to be seen quite deeply embedded in the substance of the cornea. They were exceedingly fine, and owing to the inability of the patient to tolerate examination, were not easily seen. It seemed likely that if one could get a better examination other hairs would be found, and this proved subsequently to be the case.

Mr. F. W. Law, the house surgeon, endeavoured to remove one of these hairs; he found, however, that as soon as an incision into the corneal substance was made, it became impossible any longer to see the hair.

No hairs were found in the conjunctiva, and no nodules were present at any time in the course of the disease, and consequently the usual term of "Ophthalmia Nodosa" has no point as applied to this particular case.

He remained in hospital for five weeks and was frequently examined by many observers during his stay. Intolerance of light was a marked feature. The hypopyon disappeared in a few days, but he had very considerable exudate into the vitreous which was slow in clearing; it had, however, cleared to a large extent five weeks later, leaving rather gross floating opacities. The keratic precipitates were soon much reduced in number and size, but were still quite copious on his discharge, at which time the fundus was seen fairly easily, and nothing abnormal was discovered in it; his visual acuity was 6/12.

Previous to leaving hospital slit-lamp examination became possible, and several additional hairs were discovered by its means; all of them extended quite deeply into the substantia propria. It was not possible to make out their structure, as to whether they were barbed or not.*

The future history was one of progressive and uninterrupted recovery, and the recurrences which have been spoken of as a marked feature of the condition, did not occur. I last saw him on September 1, that is three and a half months after the time of the accident, when the eye was quite quiet, entirely free of inflammation, the hairs could still be seen, and I could not satisfy myself that they had shifted their position, though I should be quite unable to be sure that they had not done so. No nodules were present; there were no adhesions of the iris; I could see no fundus disease, and his visual acuity was 6/6.

* There is no evidence that the hairs were those of a "woolly bear," except the boy's statement, and indeed one's impression was that they seemed to be too fine for the bulk of the hairs of the "woolly bear" caterpillar, and as stated below, the barbing of these hairs would seem to offer a powerful bar to their penetration.

Mr. J. B. Lawford, in the "Transactions of the Ophthalmological Society," 1895, Volume XV, p. 210, reports a case of this condition with his usual thoroughness and accuracy, and in doing so surveys the literature up to that time. In the twelve years preceding, he was able to discover eight reliable cases. The features that he points out as being outstanding are the following:

Firstly, the subsidence of the symptoms which follow immediately upon the injury, with a later recrudescence, so that in only one case was the interval between the accident and the date at which the patient was first seen by an ophthalmic surgeon less than two months. His patient, however, like the present one, came under observation two weeks after the injury.

Secondly, there are the usual signs of irido-cyclitis.

Thirdly he says the most noteworthy feature consists in the presence of nodules in the conjunctiva episcleralis. The favourite site appears to be the ocular conjunctiva, between the lower border of the cornea and the fornix They had varied in number from three to twenty-six. The nodules are round or oval, flattened, grey or yellowish, and semi-translucent in appearance, firm when touched with the finger, their size being variously given as that of millet seeds, or 1 to 2 mm. in diameter.

He quotes Becker as saying that these nodules do not develop in man till three months after the injury to the eye; they were, however, present in Lawford's case three weeks after the accident. It will be seen that in the present case none were visible three and a half months after the accident, and the eye was quite white and had apparently completely recovered.

The subsequent history of a case, according to Lawford, is one of repeated remissions and exacerbations, and he states that in all the recorded cases, including his own, a period of at least six months had elapsed before the symptoms entirely disappeared.

The present case is again an exception in this respect, for although during the first week or two the condition of the inflammation varied somewhat, on the whole, so soon as obvious improvement set in progress was slow but uninterrupted.

Lawford states with regard to the prognosis that it must be guarded, that there may be such severe structural change as may lead to serious damage to the sight, but that in none of the reported cases has the eye been destroyed. The recovery in the present case may be considered to have been complete, and the visual acuity fully restored, as also occurred in his own case.

How extraordinarily sharp must be the point of such flexile structures as these hairs, in order that they shall penetrate quite deeply so tough a structure as the cornea! The fineness of them is borne in upon one when they are examined in the cornea by means of the slit-lamp.

I am indebted to Mr. J. E. H. Roberts, whose exceptional knowledge on these matters is so well known, for much interesting information about caterpillar hairs. He has shown me under the microscope that the hairs of the woolly bear caterpillar, that is, the larva of the tiger moth, are all of them coarsely barbed, and indeed this can easily be seen with an ordinary corneal lens, but it is a curious fact that the barbs point, not as one would expect, backwards, so as to facilitate the penetration of the hair, but forwards, towards its point, and would therefore seem to be planned to prevent their penetration.

It has been suggested that the hairs are capable of migration in the tissues of the eye; were the barbs directed so as to point away from the point of the hair, this phenomenon would seem likely, but arranged as they are, it would seem to be almost impossible of occurrence. In the case of the gold-tailed moth, Eltringham's diagrams show the barbs pointing away from the point of the hair, and so it would seem migration in that case might well occur.

It has been suggested that the hairs contain some form of poison, and in confirmation of this it is stated that they are much less irritating after being washed with alcohol, and that the alcoholic washings possess irritating properties, and further, that hairs taken from a dead caterpillar produce much less severe lesions than do those from the living larva. These observations, however, have been disputed, and appear to be lacking in verification. At the same time, it would seem that the severity of the inflammation with the formation of hypopyon, and its long course, extending into months, would strongly suggest that it was not due simply to the presence of a small, inert, foreign substance in the cornea, but that some potent poison was responsible for it.

FRAME FITTING BY PHOTOGRAPHY

BY

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THE corneae and pupils are, as we know, misleading indices for the fitting of frames and especially for bifocals. The only rational criteria are the points on the two corneae which the visual axes traverse, and which the squint camera, details of which I published thirty years ago*, mapped out by what we might call "circumlental photography," that is to say, by surrounding the lens of the camera with a reflecting or brightly illuminated surface so as

* Ocular Muscles—1st edition, p. 333, 2nd edition, p. 209.

practically to convert the camera into an observer with an ophthalmoscope.

The plan which I worked out at the same time for spectacle centering, was to take a circumlental photograph, of exact life size, and lay upon the finished picture a transparent sheet of celluloid marked with cross lines to enable the measurements required to be studied at leisure. The best-fitting *unglazed* spectacle or eyeglass frame, chosen out of a considerable stock, was to be first placed upon the patient's face, to be included in the photograph.

It was more particularly for bifocal lenses that I felt the need of greater accuracy, and if trifocals should come into use, the need would be greater still. A much larger proportion of the population would, I venture to believe, tolerate these useful lenses better were adjustment of the reading segments quite correct.

Perhaps more important still is the accurate adjustment of a pair of strong cataract lenses. We all know how often the benefit of a second operation is largely discounted by the difficulty of getting the eyes to work together, and with very strong lenses every millimetre of departure from the visual axes means a good deal.

The squint camera was easily made at the time, for its own purpose, but its adaptation to frame fitting met with insuperable difficulties, even in the hands of a manufacturer of the first water, so the idea lay dormant for many years, till recently I had the good fortune of a request from Mr. Howard, of Messrs. Curry and Paxton, that he might have a try at it, and his ingenious and painstaking mechanical efforts to ensure accurate focusing have been crowned with success. The chief difficulty—that of securing truly life-size photographs with sufficient accuracy—has been quite overcome, and the patient has only to be seated before the visuaximeter*, as it may be called, shown in Fig. 1, for the photograph to be taken in a few seconds. The results are shown in the succeeding figures.

Fig. 2 shows a white line down the centre of the patient's nose, which Mr. Howard has ingeniously worked in, and the little squares of the scale are in millimetres. The corneal reflections are seen, just as in my squint camera, as little white discs with a black spot, to indicate the visual axis, in the centre of each; this black spot corresponds to the lens of the camera in the midst of its white surround. The displacement of the visual axis from the centre of the cornea, which depends on the angle gamma, can be seen to be about normal, in each eye, in this case, and the visual axes are of equal height, though that of the right is 28.5 mm. from the middle line, and that of the left 31.5 mm. It should be explained that these photographs are taken for a reading distance of 14 in. That

* In the possible patenting of this instrument by the manufacturers as a recompense for their time and trouble, I have no part.

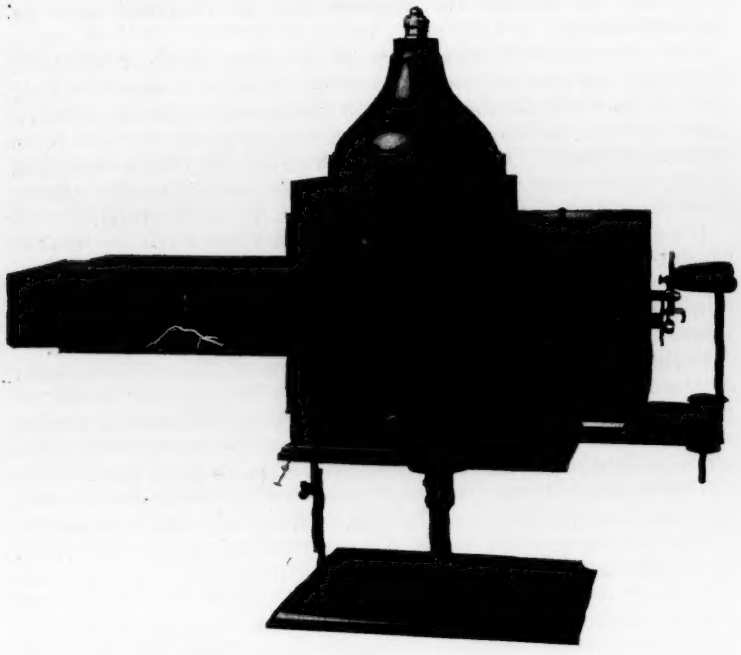

FIG. 1.

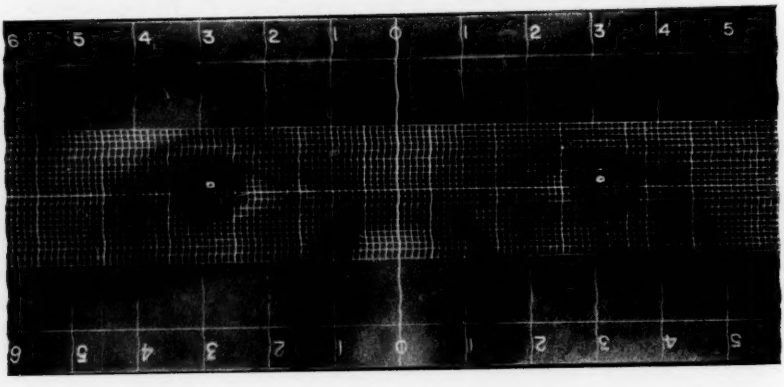

FIG. 2.

being known, it is a simple matter to read from a table what their separation would be in distant vision.

Fig. 3 illustrates how well the difference in height of the two eyes comes out, though one is only 4 mm. above the other. It must

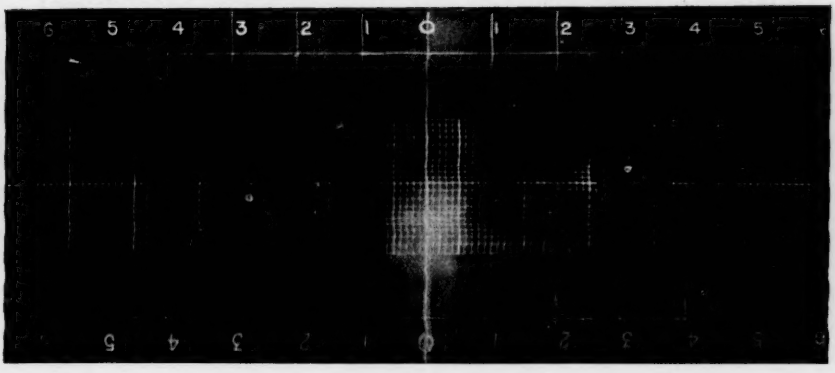

FIG. 3.

at once be evident how much more accurate this method of frame fitting must be than those usually employed.

For bifocals my plan included celluloid templets cut to the shape of all the ordinary kinds of reading segments. These were to be laid over the finished photograph, so that by running a fine pencil round their edge, their most approved position and size could be studied and marked before the photograph is passed on to the workshop.

PSEUDO-GLAUCOMA

BY

ALEXANDER MACRAE

NEWCASTLE-ON-TYNE

IN view of Dr. Adalbert Fuchs' interesting paper on this subject in the February number, 1928, the following case, which differs in some features from any of his, is perhaps worth recording.

The patient, C.M., a girl, aged 13 years and 9 months, was found on routine school examination to be blind in her right eye. The Ophthalmic School Medical Officer, Dr. Norman Wren, on looking at the fundus at once recognised the rarity of the condition and asked me to see her with him.

The patient is a healthy girl of average development whose good looks are somewhat spoiled by a capillary naevus which covers a large part of her forehead and face. This is present also in scattered areas all over the body, being specially marked on the arms and hands. Another peculiarity is that her right hand and arm are noticeably larger than her left. Seven months or so before the child was born the mother fell downstairs and to this accident she attributes, perhaps with reason, these peculiarities.

The girl is bright and of good average intelligence as evidenced by her standing in school.

Vision in the left eye is 6/6; the right has perception of light only in a limited part of the temporal field. Refraction of both eyes is practically emmetropic. The tension of each eye is normal. Direct reflex to light of the right iris is feeble, but consensual response is brisk. Cornea, aqueous, lens, and vitreous are clear; iris is normal in appearance and the fundus, apart from the disc, is normal.

The appearance of the disc arrests attention at once; it is smaller than normal and instead of being circular is roughly rectangular in shape, with the longer sides nearly horizontal; the margin forms the over-hanging edge of a deep goblet-shaped cavity which is obviously larger in all directions than the disc which forms its mouth. So great is the over-hang that it is impossible to follow any of the vessels which curl round the margin to their junction with the central vessels in the depths of the cup. The inner edge of the rim on the temporal and supero-temporal sides is formed by a narrow white scleral band outside of which is a band of pigment. The white band is not so clearly marked at other parts of the margin (Fig. 1.).

In the floor of the cup (Fig. 2) which is about 5D. in depth, the lamina cribrosa is clearly seen in an area occupying its upper third; below and to the nasal side of this two vessels emerge. Of these the lower one is the larger. It forms a broad band directed to the nasal side and from its upper surface two vessels are given off within a very short distance. These can be traced so far in the walls of the cup as to leave little doubt that they are the superior temporal and nasal retinal arteries.

The other vessel in the cup is therefore in all probability the central vein. In size it is narrower than the artery. The retinal veins in the fundus have the ordinary dark colouration which distinguishes them readily from the arteries, but there is no difference in colour between the two vessels as they appear in the floor of the cup. At first I took this to be another peculiarity of this case, but on looking up Frost's "The Fundus Oculi" I found that in cases of deep glaucomatous cupping he depicts the same phenomenon though he does not refer to it in the text. I have paid

FIG. 1.
Right Eye. Direct method. Retina in focus.

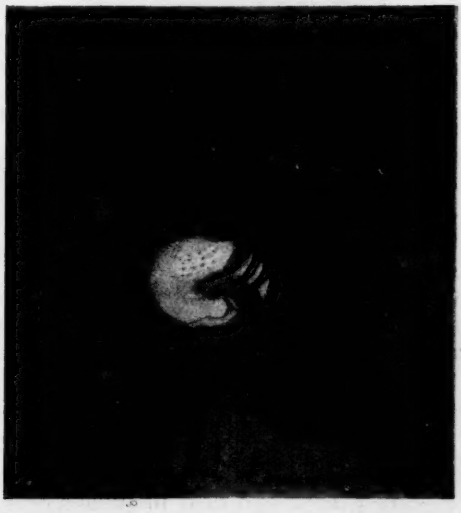

FIG. 2.
Right eye. Direct method. Base of cup in focus.

attention to this point in every case of deep glaucomatous cupping I have seen since my attention was drawn to it, and so far I have found that at the bottom of the cup the vein does not appear any darker than the artery. Why this should be so I am at a loss to understand. Probably it is a question of illumination and is dependent on the depth of the cupping.

The disc in the other eye is of normal size and appearance. Its only peculiarity is a single small isolated round patch of pigment whose position is indicated in the drawing (Fig. 3).

Diagnosis: The deep cupping extending to the margin of the disc all round, and the fact that the only area of field in which any

FIG. 3.

Left eye. Direct method.

vision is present is on the temporal side, are both suggestive of glaucoma. But the array of facts on the other side leaves to my mind no doubt that we are dealing with a congenital abnormality. In the first place there is the presence of the other abnormalities in the body—the naevus and the difference in size of the upper limbs. Then in the eye itself the peculiar rectangular shape of the disc, the striking goblet-shaped cupping, the very unusual way in which the branches of the retinal artery originate, and the absence of increased tension or any history of pain in the eye all point to the conclusion that the condition is a congenital one.

It is at least an interesting coincidence that there is a history of severe trauma to the mother during the very early foetal life of this child. The child is one of a family of eleven, all of whom are alive and well, except two boys who died in infancy. Two younger children, aged 11 and 8 years, have been examined by Dr. Wren and myself, and found to have normal eyes. One brother, aged

24 years, wears glasses, but otherwise nothing is known of any ocular abnormality in the family.

The case was shown at the meeting of the North of England Ophthalmological Society on February 2, 1928.

A CASE OF RIGHT HOMONYMOUS HEMIANOPIA

BY

DR. NASR FARID

CAIRO

HOMONYMOUS hemianopia is one of the signs of a lesion of the visual centres in the occipital lobe. The symptoms vary with the underlying cause. The lesion generally falls under one of five headings: (1) Thrombosis of the posterior cerebral artery or one of its branches. (2) Haemorrhagic lesions due to local disturbances of the venous circulation. (3) Trauma. (4) Chronic meningitis, usually of syphilitic origin. (5) Compression, as by cyst, abscess, or tumour.

The case here described was probably due to a lesion of the second type.

Hafez, aged 65 years, saw me in consultation with Prof. Fuchs on April 16, 1926. His vision was then, with the right eye, finger-counting at 20 cm., with the left eye, 4/60 with + 2.5 D. Sph. 6/9. The fundus showed chorio-retinitis near the disc in both

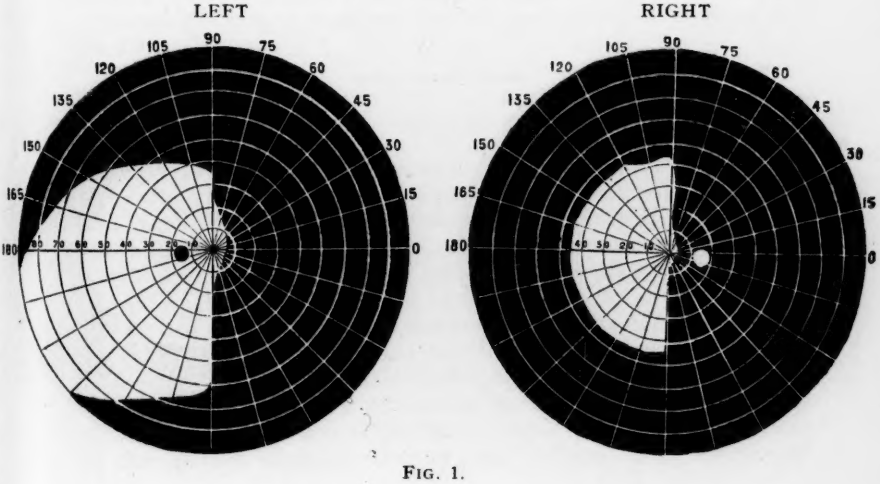

FIG. 1.

eyes. In the right eye these patches were as large as the head of a pin, thus explaining the loss of visual acuity. The visual fields showed right homonymous hemianopia (Fig. 1).

There was no evidence of syphilis or any other cause, and the blood and urine were normal. The only positive findings were arterio-sclerosis and an excessive use of tobacco (50 cigarettes per diem) and coffee.

His medical attendant, Dr. Barrada, gave the following report:

September 22, 1926—*Heart,* apical systolic murmur conducted to axilla, systolic aortic murmur; blood pressure, 136/70; *nervous system,* forgetful and emotional; grip, R. 42, L. 32; weak movements and shuffling gait; reflexes brisk. October 17, 1926—Babinski on left side, doubtful on right; blood pressure, 145/85. December 10, 1927—Blood pressure 137/75; grip R. 70, L. 41. Babinski on left side, no response on R.; patient feels much better.

I examined him again on April 11, 1928 and found incipient cataract in both eyes. Vision: R. with + 1D. Sph. fingers at 1 m., L. with + 1D. Sph. 6/18. The field of vision had improved and the hemianopia was nearly abolished (Fig. 2).

Treatment consisted in the use of iodides and strychnine and the cessation of smoking and coffee.

Prof. Fuchs considered that the lesion was due to venous haemorrhage into tracts on their way up to the left occipital lobe, and that this had later undergone absorption. The other symptoms were presumably due to multiple foci of the same nature affecting the pyramidal tracts and other parts of the central nervous system.

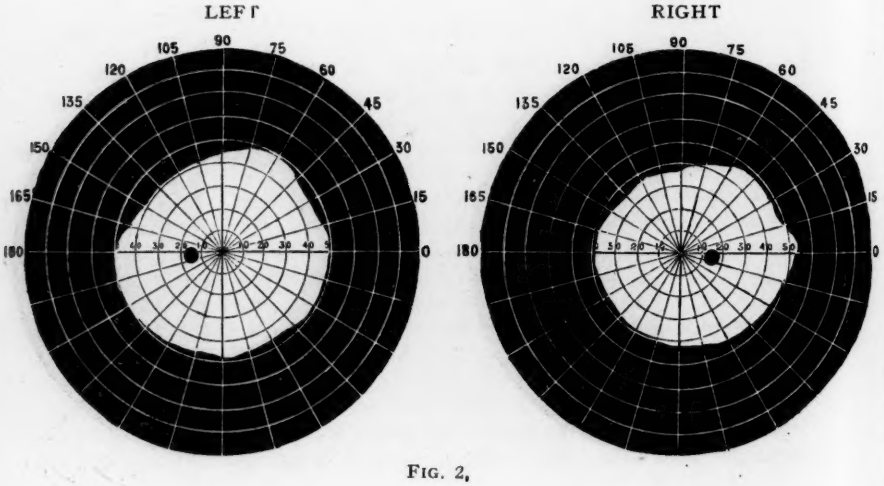

FIG. 2.

ANNOTATIONS

A Portrait of Professor Priestley Smith

On December 14, 1928, an interesting ceremony took place at the Queen's Hospital, Birmingham, when Mr. Priestley Smith, Emeritus Professor of Ophthalmology in the University of Birmingham, was presented with his portrait in appreciation of his connection with the hospital, which has lasted for more than half a century.

The portrait is by Mr. Harold Speed, and Mr. Priestley Smith, in replying to the presentation, asked that it might be hung in the Board Room of the hospital. It is a great and not a very common honour for a portrait of a member of the medical profession to be hung in a public institution during the lifetime of the original; we congratulate the hospital in thus receiving a portrait of one who all his life long has been an example to his city, worthy to be esteemed and held in honour and affection. And we congratulate Mr. Priestley Smith who, in addition to being Professor in Birmingham, has for many years been regarded as pre-eminent in the world of ophthalmology, and a master of clear cut thought and speech. We know that the honour is well deserved and we know that it is one that will be a source of great gratification to him, to remember in the evening of his life the kindly feelings of his friends and the citizens of the great city of which he is a leading member. We feel sure that British ophthalmologists and, indeed, many others, will wish to possess a replica of what, we understand, is an excellent portrait, and it is to be hoped that an opportunity of doing so will be afforded them.

Mescal

Those of our readers who made a conscientious effort to study the details of the erudite Bowman Lecture of 1925 on the Psychology of Vision will be relieved to hear of a simpler method of investigation. Like many other labour-saving devices it comes from the other side of the Atlantic and takes the form of a drug known as mescal or peyotl. This particular poison is obtained from the *Echinocactus Williamsii* and is in common use among the Indians of Mexico and even of some of the southern of the United States. It already posesses quite a respectable bibliography of its own, and has recently formed the subject of one of the Psyche Miniatures. The author, Professor Klüver, Columbia University, gives a good account of the various experiments and their effects. Dr. Macdonald

Critchley writes an introduction pointing out the possibilities of the drug in the study of the psychology of vision.

Apparently mescal is unique among drugs in that its main action is that of a stimulant of the visual and visuo-psychic areas of the cortex, producing visual hallucinations, alterations in the vividness of visual imagery, and apparent change in the aspect or behaviour of real objects. Those who wish to experiment with this strange drug should be warned that the resulting *Katzenjammer* on the following day seems to have been, in some of the subjects, very severe.

ABSTRACTS

I.—NEUROLOGY

(1) **Dworjetz.—On the correctness of the designation "Atrophy of the optic nerve."** (**Ueber die Berechtigung der Bezeichnung "Atrophia nervi optici."**) *Klin. Monatsbl. f. Augenheilk.*, Bd. LXXX, S. 30, 1928.

(1) **Dworjetz** draws attention to a group of cases wherein the optic nerve may give a typical picture of advanced atrophy, with a white disc and small vessels, and yet, at the same time, the vision of the eye may remain tolerably good. He quotes nine cases. Of these the neurological diagnosis was:—One case, tabes; two, cerebro-spinal syphilis; one, disseminated sclerosis; one, disease of the antrum of the same side; two, post-typhoid; two, alcohol poisoning. The ophthalmological diagnosis was:—Five cases of simple atrophy; three cases, neuritic atrophy; one case, atrophy after papilloedema. In each case the clinical appearances were those of total atrophy.

He concludes that a completely white nerve head does not exclude the presence of visual acuity; that optic atrophy cannot be diagnosed on the clinical appearance of the nerve head; that an atrophic appearance does not necessarily indicate an atrophy of the nerve fibres; and that the intensity of whiteness of the disc is no guide to the degree of actual atrophy which is present. He suggests that cases, which show an atrophic appearance with retention of vision, should not be called cases of optic atrophy at all, but that the term *Hypotrophy* or atrophy *in* the nerve, not *of* it, should be used.

W. S. DUKE-ELDER.

(2) **Glasscheib, A.—On the pathology and clinical history of retrobulbar neuritis. (Zur pathogenese und Klinik der retrobulbar Neuritis.)** *Zeitschr. f. Augenheilk.*, Bd. LXVI, S. 249, 1928.

(2) **Glasscheib** maintains that negative findings in the neighbouring sinuses in cases of retrobulbar neuritis are to be explained in many cases, not by the absence of disease, but by faulty diagnosis, and the failure to recognise the existence of a transudate of non-inflammatory origin. A transudate of this nature is capable of causing an oedema which in turn can cause disturbances of circulation. The existence of this transudate can be demonstrated in the maxillary antrum, where puncture and aspiration are possible, but in the ethmoid it can only be inferred from the X-ray appearances. Elsewhere the author has discussed the nature and causation of this condition; he holds alkalosis to be responsible for it: this alkalosis is said to be the result of a deficiency of vitamin D. The rational treatment of cases of retro-bulbar neuritis due to this affection is therefore the administration of vitamin D, and of substances reducing the alkalosis. A case is reported of bilateral retrobulbar neuritis occurring in a vegetarian whose diet consisted mainly of roots and berries. The administration of a diet rich in fats brought about a cure.

The author also holds that the ethmoidal cells and sphenoidal sinus may be subject to an unrecognised type of inflammation giving rise to a fibrinous exudate. In the case of the ethmoid the only signs are nasal catarrh and some oedema of the middle turbinate; when the sphenoid is affected there is severe temporal headache. X-rays do not help in the diagnosis. In the author's opinion the failure to recognise these two types explains the negative findings in so many cases of retrobulbar neuritis.

A. SOURASKY.

(3) **Wagner-Jauregg (Vienna).—Tabetic optic atrophy and its treatment. (Ueber tabische Optikus-Atrophie und ihren Behandlung.)** *Zeitschr. f. Augenheilk.*, Bd. LXVI, S. 1, 1927.

(3) The view most commonly held at the present time is that tabetic optic atrophy is not produced by the direct action of the treponema pallidum, but is rather a degenerative process. **Wagner-Jauregg** distinguishes two distinct processes occurring in metasyphilitic lesions generally, an inflammatory process due to the local action of the organism, and a degenerative process due to the cumulative action of its toxins. That optic atrophy partakes of the latter nature is suggested by the fact that in general paralysis which is not complicated with tabes, optic atrophy rarely

occurs even although large numbers of spirochaetes are found in the brain. It will be remembered that Igerscheimer found no fundamental difference between the optic atrophy which occurs in general paralysis and that which complicates tabes. Further, cases of tabes which develop symptoms of optic atrophy before ataxy is evident rarely progress to a marked condition of ataxy. Again a tabetic with marked ataxic symptoms does not usually develop a subsequent optic atrophy. Lastly, optic atrophy progresses typically in those cases where the other symptoms of the disease seem to be comparatively stationary.

The author gives an encouraging report of the therapeutic effects of malarial inoculations, considering that an arrest of the degenerative process is possible, and that sometimes an improvement of vision may be obtained. He recommends the combination of malarial parasites with quinine in order to avoid excessive elevations of temperature.

W. S. DUKE-ELDER.

(4) **Koyanagi.—Anomalous development of the optic nerve with rare anatomical findings. (Anomale Entwickelung des Sehnerven mit seltenem anatomischen Befund.)** *Klin. Monatsbl. f. Augenheilk.*, Bd. LXXIX, S. 591, 1927.

(4) The following case of anomalous development of the optic nerve, reported by **Koyanagi**, has some points of interest. The patient was a boy, aged 19 years, with poor vision from birth, who had lost all sight in his left eye five years before he came under observation. The disc showed a colobomatous appearance, was twice as large as normal, of grey white colour, irregular in shape, and deeply excavated to the depth of about 8D. The retinal vessels at the nasal side emerged abruptly from the depth of the disc; those on the temporal side escaped more gradually. The arteries were small, and the whole retina showed pigmentary changes. There was no coloboma of the uvea. A small piece of the optic nerve was dissected out with preservation of the blind eye, and was subjected to microscopical examination. The nerve fibres were curiously arranged and much degenerated, there being a compensating excess of glial cells and of septal structures. There was much fatty tissue present, and the vessels were very small. Masses of tissue showing muscular structures were found in the intervaginal space. The muscular fibres were of the skeletal type.

Koyanagi considers that this muscle-tissue is a morphological relic. Fleischer, in 1908, reported a case of microphthalmos with coloboma of the uvea, in which there seemed to have been a rudi-

ment of a retractor bulbi. Lange, in 1897, found in the posterior part of a thickened sclera a mass of muscle fibres which he considered to be a relic of the orbital muscle.

W. S. DUKE-ELDER.

(5) **Pötzl, O.—On the cerebral representation of the horizontal meridian of the visual field. (Ueber die Grosshirnprojection des horizontalen Gesichtsfeldmeridian.)** *Wien. klin. Wochenschr.*, 41 Jahrgang, No. 28, Juli 12, 1928.

(5) After referring to the case recorded by Henschen, in which a paracentral scotoma, confined to the horizontal meridian, was found to be caused by a lesion in the depth of the calcarine fissure, **Pötzl** gives details of a case under his own observation, and attempts to elucidate the nature of this scotoma. In his case, the evacuation of a blood-cyst situated in the superior temporal gyrus caused a temporal hemianopsia to shrink to a central scotoma very similar to that described by Henschen. Whilst pointing out that it was, of course, impossible to demonstrate the absence of a lesion in the depth of the calcarine fissure, during an exploratory operation in the temporal region, the author holds that compression of the optic radiation by the blood-cyst explains all the variations observed in the visual fields in his case. He advances arguments, mainly of an indirect nature, to show the connection between the fibres of the horizontal meridian and the external geniculate body.

A. SOURASKY.

(6) **Lutz, Anton (Havana). — Binasal hemianopsia. (Ueber binasale Hemianopsie.)** *Arch. f. Ophthal.*, Vol. CXIX, 1928.

(6) **Lutz** collected 84 cases of binasal hemianopsia recorded in the literature, and here submits them to a detailed analysis, adding the history of two cases observed by himself. This rare disturbance of the visual field, he finds, occurs predominantly in males, and most frequently in the third and fourth decades of life. It may develop from a condition of complete loss of sight, or go on to complete blindness; on the other hand it may become stationary, or entirely disappear if the underlying cause is removed, or may even relapse. It sometimes takes the form of a binasal hemiamblyopia or hemiachromatopsia. The temporal halves of the field may be normal peripherally, and as regards the colour sense: in some cases, however, they too show an impairment. The central vision is almost invariably greatly reduced; sometimes a central scotoma is present. The loss of field in this variety of hemianopsia always begins at the periphery—never with binasal scotomata, as occurs in the bitemporal type—and usually in the lower nasal quadrant.

A sudden onset in both eyes simultaneously is never observed: one eye is affected first, and after a variable interval, the other becomes implicated.

The absence of other clinical signs is often a striking feature in the records of these cases. In some, binasal hemiakinesis pupillaris is the initial symptom, if the condition does not develop very rapidly. Ophthalmoscopic examination may reveal the presence of papilloedema, neuroretinitis, or simple optic atrophy; in some cases there are no changes in the fundus.

As to aetiology, the author mentions in the first instance cerebral tumour, especially if situated under the tentorium. By hindering the flow of the cerebro-spinal fluid it leads to a bulging of the floor of the third ventricle and to pressure on the optic nerves by the neighbouring arteries of the circle of Willis. Other causes are found in the changes in the circle of Willis, particularly aneurysms (due to arterio-sclerosis, fevers, syphilis and trauma), tabes and hysteria.

THOS. SNOWBALL.

(7) **Blatt, N.—Paralysis of ocular muscles following spinal anaesthesia. (Augenmuskellähmungen nach Lumbalanästhesia.** *Wien. klin. Wochenschr.*, Vol. XLI, p. 1048, July 19, 1928.

(7) In recording two cases of palsy of ocular muscles following spinal anaesthesia for operations on the appendix, **Blatt** reviews the literature on the subject. In the two cases recorded by the author the anaesthetic used was stovaine and caffeine. In one case there was a bilateral palsy of both external recti, associated with exophthalmos and miosis in the right eye; in the other case there was a left-sided lesion involving the external rectus. Eventually there was a complete recovery in both cases.

Including his two cases, Blatt has only been able to collect 84 cases in the literature. In 66 per cent. of these stovaine was the analgesic used, and the author holds that the proportion in which this agent was used is no coincidence (and presumably not explained by the greater frequency with which stovaine is used as compared with other analgesics). He points out that stovaine also affects the motor function, producing a slight paresis in addition to analgesia. Added substances like strychnine or caffeine, which are supposed to minimise the risk of motor involvement, are apparently not quite effective, as ocular complications have been reported with both.

Of the 84 cases, abduction paralysis occurred in 68, of which 26 involved the left side, 24 the right, and in 18 the affection was bilateral. Six cases of ophthalmoplegia externa are recorded, one

associated with mydriasis, and four with miosis. The trochlear nerve was involved in three cases, and the facial in two.

The time of onset of the paralysis varies between 3 and 21 days after the lumbar puncture. In no case reported was it under three days. In 45 per cent. of cases it was between 3 and 6 days; in 30 per cent. between 7 and 10; in 15 per cent. between 11 and 15; and in the remaining 10 per cent. between 16 and 21 days. All cases recovered fully, the shortest period being 5 days, and the longest 10 months. In 54 per cent. recovery was within 4 weeks; in 26 per cent. between 5 to 8 weeks; in 10 per cent. between 9 to 12 weeks; and in the remaining 10 per cent. between 4 and 7 months. If recovery has not occurred within 6 weeks, it is likely that it will be very slow.

The aetiology is obscure. Cases are recorded following the mere puncture without the introduction of the analgesic agent. Experimental evidence does not support the view that these cases are the result of small nuclear haemorrhages. The toxicity of the analgesic agent has been blamed, as likewise excessive doses. A neuropathic predisposition is said to be present in most cases, whilst Jonesen holds that ocular palsies are merely coincidences; they are really of syphilitic origin and quite unassociated with the spinal anaesthesia. It is possible that there is a syphilitic basis in many cases, and that the spinal anaesthesia acts as an exciting cause.

The author points out that contraction of the antagonistic muscles is likely to occur in cases that are not treated. Apart from treating any associated condition (such as syphilis), galvanism and faradism are advised, as also caffeine and iodides.

A. SOURASKY.

(8) **Schöpfer.—Sixth nerve paralysis in herpes zoster ophthalmicus. (Ueber Abduzenslähmung im Verlaufe eines Herpes zoster ophthalmicus.)** *Klin. Monatsbl. f. Augenheilk.*, Bd. LXXX, S. 28, 1928.

(8) A paralysis of motor nerves as a complication of herpes zoster is rare, but by no means unknown. **Schöpfer** records a case of a man, aged 65 years, who developed herpes zoster ophthalmicus on one side with a typical frontal distribution. Over the skin area there was no sensibility; the cornea, however, was clear, while its sensibility was normal, and the pupil reactions were intact. Five days after the onset of the disease he developed a paralysis of the homolateral sixth nerve. The author gives the opinion that the infection was due to direct spread allowed by the close association of the sixth with the fifth nerve in the cavernous sinus and the superior orbital fissure.

W. S. DUKE-ELDER.

(9) **Barkan, Otto and Hans (San Francisco).—Fracture of the optic canal.** *Amer. Jl. of Ophthal.*, October, 1928.

(9) **Otto and Hans Barkan** are of opinion that fracture of the optic canal with resultant lesion of the optic nerve is much more common than is generally supposed. Holder, for example, in 126 cases of fractured base noted that 60 per cent. passed through the optic foramen, though Brun found the condition in only eight out of 470 cases. This discrepancy is probably because the former cases were mainly in suicides by gunshot wounds. The authors have seen 22 cases of fracture of the optic canal in six years of practice, and they believe that if careful fields were taken in all cases of fractured base there would be found a fair percentage of partial constrictions. The history of a typical case is that of injury with a blunt object in the region of the orbit, usually the outer portion of its upper margin, followed by immediate almost complete loss of vision. The orbital plate is very thin in its posterior two-thirds, so that a relatively slight force is sufficient to break it; which is important from the forensic standpoint. One of three things may now happen—first there may be rapid and complete recovery, in which case pressure of blood within the sheath has produced only functional inhibition of the optic nerve; secondly, there may be partial recovery leaving a permanent field defect due to a tear having been produced in the nerve; thirdly, there may be complete severance of the nerve. Ophthalmoscopically, the findings in the author's cases have been negative until descending atrophy appeared, at some date after the second week. With regard to fields, a sector defect, even if observed early, will probably remain unchanged being due to a tear in the nerve, and, in the authors' experience, a sector defect which extends to and includes the macular region is almost pathognomonic. The pupillary phenomena are of interest; in the early stages, where there is complete arrest of visual impulses, the direct light reaction is absent. In the functional cases, due to pressure of blood, it returns as absorption progresses. If the nerve is torn, however, the return of the pupil reaction depends on whether the papillo-macular bundle has been spared or not. If it has there may be quite a large field defect with a normal pupil reaction. While if the bundle has been involved, there may be loss of only one-third of the total field, including, of course, the macular area, with complete abolition of the pupillary reflex to light. This phenomenon has led to erroneous diagnosis of pre-existing luetic infection. An important observation made by the authors is that, up to date, X-rays have been of no avail in diagnosing the type of case they are reporting.

F. A. WILLIAMSON-NOBLE.

(10) **McCowan, P. K. and Cook, L. C. (London County Council Mental Hospitals).—Oculogyric crises in chronic epidemic encephalitis.** *Brain*, Vol. LI, Pt. 3, 1928.

(10) **McCowan** and **Cook** obtained the material for this paper from a total number of 136 encephalitics, all of whom are, or have been, patients in West Park Mental Hospital or the Manor Institution for mental defectives. Of these, 23, approximately 17 per cent., were affected. Notes of five representative cases form an appendix to the paper. The authors sum up their results as follows:

"1. Oculogyric crises are unknown apart from epidemic encephalitis, and it is only of comparatively recent years that they have occurred. In our series the earliest case commenced in 1923, and the earliest epidemic which led to a case was that of 1919. The shortest interval between the acute attack and the appearance of the crises has been a few months, and the longest eight years.

2. These crises are not associated with any particular mental type of encephalitis, but so far they have not been described in a non-Parkinsonian case. Other ocular symptoms are not more frequent than in the ordinary encephalitic without crises.

3. The crises are in the nature of tonic seizures and need not be confined to the eye muscles, a more or less co-ordinated spread to the muscles of the head and neck being not uncommon. Physical pain is an unusual concomitant, but physical distress of various kinds is very common.

4. The eyes may become fixed in any position, and this position may change during a crisis, or from one crisis to another. In one case the eyes took up a position of forced convergence, and in three a fixed stare to the front has been observed. This variability is important in determining the site of the lesion.

5. The duration of the attack varies from a few seconds up to several hours, and attacks in the same patient may vary considerably in this respect.

6. The majority of patients show a predilection for certain times of the day, and this is doubtless to be correlated with the effect of fatigue and emotion as determinants of attacks.

7. It is occasionally possible to shorten or prevent the attacks, and suggestion is the most potent agent in this respect. Each patient usually finds some means of allaying the discomfort incident to the crisis, lying down with eyes covered being the most common.

8. It is misleading to regard these crises as hysteriform in nature. The undoubted similarity between the results of precipitating and inhibitory factors in hysteria and encephalitis should

not be strained, as variability of symptoms depending on suggestion and emotional factors is not confined to hysteria, but is present to some extent in practically all diseases of the nervous system.

9. The increased suggestibility of the encephalitic is due to an interference with normal cortical control and a cutting off of its inhibitory influence.

10. The abolition of cortical inhibition explains the release phenomena of different subcortical centres manifested clinically as tonic fits, ocular spasms, myoclonias, emotional facility, paradoxical reactions, etc., the particular manifestation depending on the site of the lesion.

11. The causal lesion of oculogyric crises lies in associational mechanisms situated above the four supranuclear centres subserving conjugate movements, the theory being accepted that there is a supranuclear centre for lateral conjugate movements, and one for vertical movements on each side.

12. The effect of emotion on the crises is probably indirect, brought about by an inhibition of the already enfeebled inhibitory fibres from the cortex.

13. In a certain proportion of the cases the crises tend to disappear with time, and this is specially so in cases treated with hyoscine.

14. A large proportion of encephalitics who suffer from oculogyric crises subsequently require certification, a fact which should be correlated with the loss of cortical inhibition in these crises and in encephalitic psychoses.

15. Hyoscine administered hypodermically is the most generally useful method of treatment in this, as in other Parkinsonian phenomena, but it should only be used under careful supervision and in selected cases."

A useful bibliography accompanies the paper.

E. E. H.

(11) **Fulton, J. F. (Boston).—Observations upon the vascularity of the human occipital lobe during visual activity.** *Brain*, Vol. LI, Pt. 3, 1928.

(11) In this paper **Fulton** gives an interesting account of a very unusual case from Cushing's Clinic at Boston. The patient was a man, aged 26 years, who suffered from headache, failure of vision with right homonymous hemianopia, left exophthalmos with slight pulsation, and bilateral papilloedema with advanced secondary atrophy on the left side, and early secondary atrophy on the right side. In view of the fact that there was a loud coarse

systolic bruit over the left occipital region, Cushing, before operating on a presumably very vascular tumour, ligatured the external carotids on both sides. On turning down a left occipital bone flap, a large angry-looking angioma arteriale racemosum of the left occipital lobe was disclosed which extensively involved the visual cortex. Haemorrhage was so extensive that the operation was abandoned and a decompression made.

The patient made a satisfactory recovery and deep X-ray treatment was of considerable benefit in reducing the discomfort from the bruit. Subsequent examination showed that when the patient used his eyes for reading, or attempted to perceive objects to his blind side without otherwise exerting himself, a very marked increase occurred in the bruit, detectable both by auscultation and by electrophonograms. Other types of mental effort, such as straining to hear the tick of a watch or various forms of olfactory stimulation had no influence upon the bruit. It would appear that visual effort was associated in this case with increased vascularization of the occipital cortex.

E. E. H.

(12) **Langdon, H. Maxwell, and Cadwalader, W. B. (Pennsylvania). — Chronic progressive external ophthalmoplegia.** *Brain,* Vol. LI, Pt. 3, 1928.

(12) **Langdon** and **Cadwalader** give a report of a case which they believe is the only one recorded in which a post-mortem examination has been made in a case of progressive external ophthalmoplegia. The patient was a woman, aged 81 years, in good general health when first examined by the authors. The right eyelid began to droop at the age of 43 years and soon after this the left lid was similarly affected. Examination revealed complete ptosis of each eyelid : the visual axes were slightly divergent ; the pupils measured 3 mm. on each side and reacted promptly to light. The power of accommodation was very feeble, but not entirely lost (how much accommodation is present normally at 81 years of age?—*Reviewer*). The two eyeballs appeared immobile, but, on voluntary effort, an extremely small movement of each eyeball, when rotation was attempted in any direction, could be detected. The patient died of pneumonia three years later, and the brain was secured for pathological examination. The sixth nerve nuclei were easily recognised. The cells of each nucleus were well stained, and chromatolysis was very slight when compared with the cells of a normal nucleus. The nerve cells were slightly diminished in number and presented definite variations in size and, to some extent, in shape. At least one-third or one-half of their number were distinctly smaller in diameter than

the others. Similar appearances were not observed in the control sections. The bundles of fibres composing the root of the sixth nerves in their course through the pons appeared smaller in diameter and less numerous than in the control. Similar appearances though less marked, were observed in the third and fourth nuclei. The cells composing the nuclei of Darkschewitz, Perlia, and Edinger-Westphal were normal in size and number. There was no evidence of nerve degeneration (Weigert), nor was there any evidence of inflammatory reaction.

The authors draw attention to the similarity of their observations to those found by Greenfield and Stern in progressive spinal muscular atrophy of childhood of the Werdnig-Hoffmann type, and consider that their case must be regarded as a similar form of chronic neuron degeneration, though the alterations were practically limited to the ocular neurons, and presumably due to the same pathological process. An interesting discussion of the literature on the functions of the nuclei of Edinger-Westphal and of Perlia concludes the paper which is accompanied by a bibliography and illustrated by micro-photographs.

E. E. H.

(13) **Kolodny, A. (Iowa).—The symptomatology of tumours of the temporal lobe.** *Brain*, Vol. LI. Pt. 3, 1928.

(13) **Kolodny's** paper is mainly of neurological interest and deals at considerable length with the various localising symptoms in a series of 38 cases of tumour of the temporal lobe.

As regards ocular symptoms, papilloedema was present in 86 per cent. of the cases. The comparative degree of swelling of the nerve heads was only found to be of lateralizing value when seen in the incipient stages. The author points out in opposition to Cushing's statement that "the perimeter as a diagnostic aid in temporal lobe tumours is possibly the most important agent of all," that trustworthy examinations of the visual fields were possible in 74 per cent. only of the cases of his series, and that defects of lateralizing importance were only found in 18 per cent. In over 46 per cent. of the twenty-eight cases with reliable examinations the fields were normal. He explains the relative rarity of defects in the visual fields by the fact that the fibres of the optic radiations, in their course towards the area striata, wind round elastic and yielding structures, the inferior and posterior horns of the lateral ventricle. Three excellent semi-diagrammatic drawings of the course of the optic radiations illustrate his point. The paper is accompanied by a useful bibliography and will repay reading in the original.

E. E. H.

II.—OPERATIONS

(1) **Greeves, R. A.—An operation for partial contraction of the socket.** *Trans. Ophthal. Soc. U.K.*, 1927.

(1) **Greeves** describes an operation for partial contraction of the socket which he has used with success in seven cases. He finds it most suitable for cases of obliteration of the lower fornix, but a similar device can be employed to deepen a contracted upper fornix. An incision is made in the floor of the socket parallel to the lower lid margin, and at a distance behind it equal to about the width of the normal lower lid. Through this incision, which should extend across the width of the socket, the lower part of the orbit is emptied of fat and fibrous tissue. Three sutures of No. 1 silk threaded with two half-curved needles are passed thus:—one needle of each suture is inserted behind the conjunctival incision, passed through the periosteum of the lower rim of the orbit, and brought out through the skin of the face; the second needle is then inserted in front of the conjunctival incision at a point opposite to the first, passed similarly through the periosteum and brought through the skin next to its fellow. The central suture is inserted before the lateral ones, and finally the two ends of each are tied together on the skin surface over pieces of rubber tubing. The sutures are removed after ten days. Important points are that scar tissue and fat must be freely excised, and that the sutures must pass through the periosteum.

G. G. PENMAN.

(2) **Sondermann.—Stump formation after enucleation. (Beitrag zur Stumpfbildung nach Enukleation.)** *Klin. Monatsbl. f. Augenheilk.*, Bd. LXXIX, S. 786, 1928.

(2) **Sondermann,** to insure a more efficient action of the extra-ocular muscles after enucleation of an eye, attaches them to the conjunctiva previous to their separation from the sclerotic. After enucleation a fat implantation is made in the orbit and the conjunctiva is closed by a purse-string suture.

W. S. DUKE-ELDER.

(3) **Kirby, Daniel B.—A modified Motais operation for blepharoptosis.** *Arch. of Ophthal.*, July, 1928.

(3 Shoemaker in 1907 devised a modification of Motais' original technique by adding a skin incision, so that the muscle tongue could be anchored accurately to the tarsus in its proper

position. **Kirby's** modification consists in doing the entire operation through a skin incision.

The technique is briefly as follows:—

A horizontal incision 25 mm. long is made through the skin of the upper lid, 8 mm. above its margin. The aponeurosis of the levator is followed backwards to 8 mm. above the tarsal border, where a horizontal incision is made through it and through the smooth muscle of the upper lid, exposing Tenon's capsule. The conjunctiva of the fornix is held out of the way by a retraction suture. Tenon's capsule is opened at the temporal side of the superior rectus, and a hook is slipped beneath the muscle, which is exposed so that a tongue 10 mm. long and 4 mm. wide can be made. A double-armed silk suture is passed through the tongue 2 mm. from its end, by which it is anchored to a pouch prepared for it anterior to the tarsus, the needles being made to emerge through the lid margin just nasal to the centre of the cornea. A second suture is used to unite the tongue to the tarsus. The skin incision is closed by interrupted sutures.

Of the 12 operations so far performed eight were completely successful, one was a failure, one was over-corrected, and two were under-corrected.

F. A. WILLIAMSON-NOBLE.

(4) **Parker, Walter R. (Detroit, Michigan).—Ophthalmic plastic surgery; clinical procedure in certain cases.** *Amer. Jl. of Ophthal.*, February, 1927.

(4) **Parker** recommends the use of epidermic rather than whole skin grafts in repair of the lids, if the conjunctiva is intact. The cutting of these is facilitated by smearing the prepared surface and the razor with a layer of sterile vaseline because this prevents the grafts from curling up and helps them to adhere to moulds, or to the prepared surface. They should be transferred directly from the razor to the surface to be grafted by putting a few drops of saline on the razor and allowing it to flow under the graft. When there is a large surface requiring more than one graft, they should be made to overlap each other by 3 or 4 mm. Sutures are not necessary if the graft is large enough to cover the whole surface and there is no probability of its being pressed away when dressings are applied. If sutures are used, they should be passed through the graft before being made to enter the edge of the skin. Senile ectropion, due to hypertrophic conjunctivitis, is often cured by cautery punctures of the conjunctival surface of the lid, provided the puncture is deep enough to pass through the tarsal plate. If this fails, the Kuhnt-Sziminoski operation is required; the base

of the triangle of skin which is removed should pass up and out from the outer canthus at 45° and not horizontally, as often shown. When the ectropion is more extensive, an incision is made along the lid margin immediately outside the hair line, the lid is dissected free and an epidermic graft applied to the raw surface. For dressings, the author advocates the use of rubber strips 10 mm. wide, laid on overlapping, if the surface is not concave. If the surface is crater-like or uneven, a mould should be taken with dental wax, and the graft be applied to the mould, raw area outwards. The mould is then replaced and kept in position by gauze saturated in sterile vaseline. The dressings are removed on the eighth day and the parts cleansed with boric lotion and stitches removed. Dressings are re-applied for three days and then removed finally, the graft being smeared with sterile vaseline. A useful procedure in extensive symblepharon is to dissect the lids free and insert into the conjunctival sac a disc made of equal parts of wax and paraffin and covered with an epidermic graft. The disc should have a hole in the centre so as to avoid injuring the cornea. During healing exfoliating epithelium can be removed by pledgets of cotton wool dipped in alcohol.

F. A. WILLIAMSON-NOBLE.

(5) **v. Szily, A.—The operative treatment of keratoconus. (Zur operativen Behandlung des Keratokonus.)** *Klin. Monatsbl. f. Augenheilk.*, Bd. LXXX, S. 36, 1928.

(5) **v. Szily** recommends, for the operative treatment of keratoconus, a superficial cauterisation of the apex in the cone of the cornea by a galvano-cautery at a dull red heat. The area treated is of a diameter of 3 mm., and the treatment is repeated two or three times at eight to ten day intervals. After final cauterisation has taken place and been approved, a small iridectomy is done at the optically best side. This is followed by the tattooing of the central scarred area with gold chloride.

Out of his operative procedures an interesting example of the close connection between trauma and interstitial keratitis is shown. A girl, a congenital syphilitic, with interstitial keratitis and keratoconus was treated in this way and had a relapse of the keratitis after each cauterisation.

W. S. DUKE-ELDER.

III.—EYELIDS

(1) **Weekers, L (Liège).—The treatment of spasmodic entropion by alcoholisation of the terminal filaments of the facial nerve in the eyelid. (Traitement de l'entropion spasmodique par l'alcoolisation des terminaisons du facial, dans la paupière.)** *Arch. d'Ophtal.*, January, 1928.

(1) Spasmodic entropion of the lower eyelid can be completely, though only temporarily, relieved by anaesthetising the lid by infiltration. The result is due to oedematous distension of the tissues and transient paralysis of the orbicularis by the novocaine. It occurred to **Weekers** that a permanent effect, equally favourable and as easily attained, might result from alcoholisation of the lid. He found, on trial, that his expectations were realised.

In the first instance he injects 0.5 to 0.75 c.c. of a 4 per cent. solution of novocaine, along the free border of the lid about 3 mm. from the edge. Five or ten minutes later he injects 0.5 to 0.75 c.c. of 80 per cent. alcohol, at the same spot and in the same manner. These procedures are painless.

The injection of alcohol provokes a moderate degree of palpebral oedema which gradually subsides in about eight days. The effect on the entropion is immediate; the inverted lid resumes its normal position and retains it. The injection is sometimes followed by some induration of the skin of the lid noticeable on palpation; this probably aids in the cure of the entropion. No permanent loss or diminution of sensation has been noted. Weekers has also employed this method of treatment in cases of trichiasis (cicatricial and non-cicatricial) of the lower lid, and in some cases of persistent blepharospasm, with encouraging results.

J. B. LAWFORD.

(2) **Verderame, F. (Turin).—A contribution to the surgical treatment of congenital ptosis. (Contribution au traitement chirurgical du ptosis congénital.)** *Rev. gén. d'Ophtal.*, July, 1927.

(2) **Verderame,** by way of prelude to the description of an operation performed by him, gives a concise description of the main points of the various classes of operation performed for congenital ptosis. He describes three groups. The first group concerns lid shortening, the second reinforcing the action of the levator, as by advancement, while the third group is that in which the action of the levator is replaced by that of another muscle such as the frontalis or the superior rectus. Some fifty references to authors are given in connection with Verderame's description.

Verderame very truly points out that among the great number of operative procedures on record there is no one which will give good functional and aesthetic results in all cases, and that in deciding upon an operation one must study the case in all its bearings and perform that operation or modification of a particular operation which is most likely to give a good result in that particular case. Short of a complete transcription of the method adopted by Verderame in one case, in which the result was good, it would be useless to say more than that the procedure belongs to the third group mentioned above and involves stitching to the frontalis muscle.

ERNEST THOMSON.

(3) **Benedict** (Rochester, U.S.A.).—**Blepharochalasis: a report of three cases.** *Jl. Amer. Med. Assoc.*, November 20, 1926.

(3) This disease of the upper eyelids was first described by E. Fuchs in 1896, and later by Weidler in America.

Benedict gives the following account of the affection:

"The disease is usually found in young persons as an intermittent swelling of the upper lids. It first makes its appearance soon after puberty as a transient oedema of the upper lids lasting for a few hours, the attacks coming on at intervals of a few days or a few weeks. Succeeding attacks last longer and appear more frequently, until a permanent swelling of the lid with great thinning of the skin and bagginess of the lids results. The bagginess and atrophy of the skin are the characteristics of the disease by which the name blepharochalasis is suggested. The onset is usually insidious, and its early manifestations are overlooked or misinterpreted. The diagnosis becomes clear only after permanent changes are brought about in the lids.

The disease is more commonly found in young girls, but has been observed in young boys and even in old men. Fuchs observed it in the lids of a man past middle life. It has been recognised in later life in persons who have had the swelling of the lid and atrophic appearance of the skin since early youth.

Blepharochalasis is to be found in two stages. The first is the intumescent stage or stage of oedema. The early attacks of swelling resemble those of angioneurotic oedema and last, usually, for from two to four days, without pain, and with only slight redness of the skin. After several attacks of swelling, one of two things occurs: (1) The swelling becomes constant with bagginess of the skin of the lid so that loose folds hang down over the margin, giving the appearance of water-filled bags, with the skin altered slightly in colour, very thin, and slightly folded or wrinkled; or (2) the swelling disappears entirely or occurs for only short times, at intervals of weeks or months, and the skin becomes reddish

brown and wrinkled, and is thrown into horizontal folds resembling brown wrinkled cigarette paper. The latter condition causes less interference with vision but may be accompanied by true ptosis, as shown by the first case of this series. The stage of wrinkling is the final stage of the disease. It has been confused with chronic atonic ptosis, which condition it indeed closely resembles, but the latter can be differentiated by the absence of attacks of swelling."

The only treatment suggested for the relief of blepharochalasis is excision of the redundant skin and subcutaneous tissue, with fixation of the lower margin of the wound to the upper margin of the tarsus. If the association of the disease with development of the endocrine glands can be substantiated, it is probable that some medical treatment can be applied for the relief during the intumescent stages.

A. F. MACCALLAN.

IV.—MISCELLANEOUS

(1) **Finnoff, W. C. (Denver).—Differential diagnosis in tuberculosis of the eye.** *Jl. of Amer. Med. Assoc.*, February 4, 1928.

(1) In this paper **Finnoff** comes to the following conclusions with regard to ocular tuberculosis:

Tuberculosis of the eye is frequently responsible for ocular inflammations, as has been shown by histological evidence. It is rarely a primary condition, but the primary focus may be relatively inactive and difficult to find. The general characteristics of uncontaminated tuberculosis in most tissues are chronicity, freedom from pain, and the tendency to produce yellow avascular tubercles that break down into ulcers. The histological structure of the invaded tissue determines the morphology of the lesion and its clinical appearance. For this reason the clinical picture will differ with involvement of the various portions of the eye.

Tuberculosis of the orbit has its most frequent site at the temporal margin and about the zygoma. In the early stage there is marked induration and swelling over the rim of the orbit. Later the abscess ruptures through the skin and leaves a characteristic fistulous opening. On probing, denuded and roughened bone is felt. The condition may be confused with syphilitic or other forms of periostitis. Fistulous openings are not characteristic of syphilis, while multiple fistulae are usually found in actinomycosis.

Tuberculosis of the conjunctiva occurs in young persons and is accompanied by enlargement of the preauricular gland, and often

of the submaxillary and cervical glands. When the eyelid is everted an irregular dirty gray ulcer with scattered red loops of granulations, protruding through the necrotic material in its base, is seen. The ulcer has a punched out, mouse-eaten border, and the surrounding conjunctiva and tarsus are often a lardy yellowish red. The ulcer shows little disposition to heal, and the bulbar conjunctiva and cornea may be invaded, though the ulcer is usually confined to the tarsus. The condition must be distinguished from Parinaud's conjunctivitis, and Pascheff's ulcers. Blastomycosis and sporotrichosis must be eliminated by microscopical examination.

Tuberculosis of the skin of the eyelids is usually diagnosed as lupus by the dermatologist before being seen by the ophthalmic surgeon.

Tuberculosis of the lacrimal sac occurs as secondary to disease of the conjunctiva or nasal mucous membrane. The diagnosis can only be made by histological examination after removal of the sac.

Tuberculosis of the cornea is usually associated with tuberculosis of the uveal tract or sclera. The posterior layers of the cornea are associated embryologically with the uveal tract, hence it is not surprising that the disease sometimes assumes the typical features of the clinical form of interstitial keratitis. Primary tuberculous nodules have been described at the limbus, which slowly invade the cornea, a sclerosing keratitis.

It is doubtful if primary *tuberculosis of the sclera* exists. *Tuberculosis of the iris* when it occurs in the nodular form has a characteristic picture. It must be differentiated from syphilis, sympathetic ophthalmitis, ophthalmia nodosa and malignant tumours. There is a form of chronic iridocyclitis, not accompanied by tuberculous nodules, which is due to tuberculosis. It is characterized by inflammation of the iris with large mutton-fat deposits on the back of the cornea.

Tuberculosis of the choroid is met with in the miliary form or as larger single or multiple tubercles. The miliary form occurs at the terminal stage of a systemic tuberculosis. They are easily seen as slightly elevated, isolated, yellowish spots under the retinal vessels. They are about 1 mm. in diameter. Pigment changes do not occur until after the fourteenth day in patients who live for that length of time. In the other form one sees with the ophthalmoscope diffuse irregular, grayish yellow infiltrates. This stage does not last long, and the picture soon changes to one of irregular white patches of scar tissue bordered by pigment. This form may be mistaken for syphilis.

Tuberculosis of the retina may be secondary to a choroidal process, or it may develop independently of demonstrable lesions of the uveal tract. Recurrent haemorrhages into the retina and

vitreous are not infrequent accompaniments of tuberculosis in young persons. Numerous small spots of effusion in the macular region are sometimes present. The author also describes three types of retinal tuberculosis, miliary tubercles, conglobate, and tuberculosis of the retinal blood vessels.

Tuberculosis of the optic nerve may be seen, though very rarely as a conglobate tubercle occupying the disc, transforming it into a white, shining tumour-like mass.

The value of tuberculin in diagnosis and treatment is discussed rather fully; for this the original paper should be studied. The author is insistent that tuberculin should never be used for diagnostic or therapeutic purposes until a general physical examination has been made by a physician, who has special experience of tuberculosis of the lungs and other parts. If injudiciously administered in cases of active tuberculosis, tuberculin might so aggravate the disease that marked dissemination would occur or a fatal issue result.

A. F. MACCALLAN.

(2) **Pagès (Rabat).—The treatment of so-called scrofulous and possibly tuberculous affections of the eye by ultra-violet rays in general application. (Du traitement des affections dites scrofuleuses et tuberculeuses possibles du globe oculaire par les Rayons ultra-violets en bains généraux.)** *Arch. d'Obhtal.*, April, 1928.

(2) The use of ultra-violet rays as a therapeutic measure in certain diseases of the eye has engaged **Pagès'** attention for some time. In this paper he draws attention to the kind of case in which this treatment is efficacious and discusses its value. Clinical notes of 13 treated cases are included. The majority of cases were those of phlyctenular conjunctivitis or kerato-conjunctivitis, occurring in pale adenopathic children, often suffering also from marginal blepharitis and impetigo. In this class of case the results have been very satisfactory and rapidly attained. He has had no failure, but is unable to answer the question he asks as to the permanence of the cure. In reference to cases of tuberculosis of the uveal tract and "tuberculous" infiltration of the cornea, Pagès feels unable to speak decisively, although in several instances notable improvement followed the treatment.

Pagès' method of applying the ultra-violet rays does not differ materially from that in general use. He begins with an exposure of five minutes for each surface, increasing ultimately to 30 or 40 minutes. Treatment is carried out every second or third day, to the number of twenty or thirty. In two instances only was intolerance observed, the occurrence of diarrhoea necessitating a temporary suspension of treatment.

J. B. LAWFORD.

BOOK NOTICES

The Treasury of Human Inheritance. Vol. II. **Anomalies and Diseases of the Eye.** Nettleship Memorial Volume: Part iii. **Blue Sclerotics and Fragility of Bone.** By JULIA BELL, M.A., M.R.C.P. With frontispiece, illustrative plates, A-O and pedigree plates, XLII-XLVII, Figs. 602-703. Cambridge University Press. Price, 36s.

In this memoir from the Eugenics Laboratory, the subject of Blue Sclerotics and Fragility of Bone, has been dealt with by Miss Bell with the thoroughness which characterises her work on hereditary disease. Historical research soon revealed that the early observers failed to note, or at all events, failed to record the association of the two abnormalities now under consideration. The records of bone fragility antedate those of blue sclerotics by many years. The first account of a definite case of hereditary idiopathic generalised bone fragility was published in 1788 by Ekmann, of Upsala, although a probable reference to this condition appeared in 1716.

Blue sclerotics seem to have escaped recognition up to the time of von Ammon, who in 1841 reported that he had dissected eyes with blue sclerotics: he noted that the sclerotic was abnormally thin and implied that the blue appearance was due to transparency of this coat. More than fifty years elapsed after von Ammon's observation before the publication of the first undoubted description of a case of blue sclerotics *and* bone fragility of the hereditary type. In 1896 Spurway described a family in which "members of three and probably four generations had suffered from repeated fractures," and in whom blue sclerotics occurred in many members.

The frequent association of a third defect, viz., deafness due to otosclerosis has been noted only in recent years: Miss Bell has not yet examined the question of the inheritance of this condition.

Miss Bell devotes a good deal of attention to the clinical and pathological features of these cases, especially in relation to the bone anomaly. These two defects (blue sclerotics and bone fragility) differ essentially in nature. Her enquiries lead her to consider it probable that "these two anomalies are not different manifestations of one defect but are two separately inherited anomalies, linked in such a way that the quantitative defect predisposes to the qualitative one, in other words, the factor leading to the presence of a thin sclerotic predisposes the individual to a faulty bone producing mechanism. This double anomaly is further suggested by the fact that there is no direct relationship between the severity of the two conditions, for very markedly blue sclerotics may be unassociated with other defects, while the less

blue sclerotics may be associated with repeated fractures from trifling causes.

A comparison of the sex-incidence in cases showing one or both anomalies exhibits wide differences, as the following figures show:

Bone fragility *with* blue sclerotics: males 108, females 129, unknown 10. Bone fragility: males 66, females 30, unknown 18.

The apparent mode of transmission of the defect differs also in the two series: in the case of associated defects, bone fragility with blue sclerotics, transmission through the mother or father is almost equal, 50 per cent. to 45 per cent.; whereas in the case of bone fragility alone the percentage is 16.3 through the mother and 52.2 through the father.

In the pedigrees included in this work there is a considerable excess of females over males with blue sclerotics, the actual figures being 248 females to 200 males; this is quite unusual, for, as is well known, the male is more liable to be the subject of hereditary disease, and the female to be the transmitter. This is most clearly shown in such hereditary disorders as haemophilia and colour blindness. In this connection Miss Bell gives in tabular form the sex incidence in a number of hereditary diseases, in which the percentage of males affected varies from 84 in hereditary optic atrophy to 44 in blue sclerotics.

Although deafness due to otosclerosis is now known to be frequently associated with blue sclerotics and bone fragility, our knowledge of this association is too recent to allow the collection of reliable statistics. The difficulty has been increased by the fact that the onset of deafness seldom occurs under the age of 20, "so that in all cases where death occurred under 20 years, or which were under this age at the time of the enquiry, the condition had to be regarded as undetermined." The figures available indicate that "the individual with blue sclerotics and a liability to fracture is more likely to suffer from deafness than the subject who has blue sclerotics with no liability to fracture . . ."

"Examination of the pedigrees will readily convince the reader that there is some close link underlying these three conditions (blue sclerotics, bone fragility, deafness), the predominating factor of which leads to blue sclerotics, for the other defects may be said never to occur, singly or combined, without the scleral anomaly. . . ."

Following the author's account of these hereditary defects will be found descriptions of the illustrative plates, most of which depict the results of the liability to fracture. Then comes a very full and valuable bibliography containing 150 references, and lastly, descriptions of the numerous pedigree plates.

The Cambridge University Press's share in the production of this volume is, as usual, wholly satisfactory.

Lecciones de Oftalmologia Clinica. By Dr. MANUEL MÁRQUEZ. Vol. I, pp. viii + 308. 280 figures. Madrid, 1926.

The first volume of a clinical Manual of Ophthalmology written by Dr. Márquez of Madrid follows original lines. It is presented in the form of twelve lectures, all of which provide interesting reading. The first of these, which is perhaps the best, treats of the vexed question of "specialities" within medicine, and the why and the wherefore of the claim of ophthalmology to rank among these. This leads on to the story of the rise of ophthalmology as a separate entity; and the lecture concludes with a series of brief biographies of the great names which have been associated with it.

Thereafter the book follows somewhat more stereotyped lines. The second lecture rapidly recapitulates the general anatomy, histology, embryology, and pathology of the eye: these are treated cursorily, for the book is essentially a clinical one. The clinical examination of the eye is then taken up in great detail: the diagnosis of ophthalmic disease in association with diseases elsewhere, the examination of the adnexa of the eye, and the methods of handling and interrogating patients are given special prominence. The fifth lecture deals with the question of the intra-ocular tension—the normal tension and the factors maintaining and altering it, raised tension, and (with a thoroughness that is unusual) the clinical incidence and rationale of states of hypotony. The sixth lecture is devoted to the changes observed in the examination of the anterior segment of the eye. The corneal reflex is first discussed and the abnormal conditions which may alter it, ranging from diseases of the lacrimal apparatus to keratoconus, xerosis, pannus, and interstitial keratitis. There follows a long section on the colour of the eye, the greater part of which is devoted to "discolourations due to blood"; the reader is introduced to the anatomy of the normal circulation, and then is taken rapidly over conjunctival causes of injection, episcleritis and scleritis, iritis and choroiditis, corneal ulcers and keratitis, and returns again to acute and subacute glaucoma, to conclude with a consideration of extravasations of blood into the various ocular tissues. The seventh lecture deals with the sensory symptoms met with in ophthalmology, the greater part being devoted to the types and incidence of ocular pain. The subjective symptoms of vision follow: amblyopia, hemeralopia, diplopia, field defects, and so on; and two lectures are devoted to the technique of investigating the visual fields, the light sense, the colour sense, and the visual acuity. The last two lectures are occupied by physiological optics and refraction.

An arrangement such as this may seem, and is, at first somewhat bewildering, but it succeeds in maintaining the interest of

the reader and referring him back to many important points; for example, under the heading of "the volume of the eye" there appear sections in considerable detail on myopia, glaucoma, macro- and microphthalmos, staphyloma, keratoconus, atrophia, and perforating injuries, to mention a few. Moreover, each point is considered thoroughly and fundamentally: thus in the sections on sensation the neurological anatomy concerned is fully described, and the section on physiological optics deals in no cursory manner with the fundamental mathematical principles involved. To a beginner in ophthalmology the book might present some difficulties; but as a companion to clinical work (which, indeed, is its declared purpose) it should prove more than ordinarily helpful and stimulating.

Die Behandlung der Augenkrankheiten in der Allgemeinpraxis. By KURT STEINDORFF. Leipzig: Georg Thieme. 1928.

This book represents a brave effort in a thankless cause. It is one of a series of monographs devoted to treatment and intended for the general practitioner. No doubt such books on the non-special subjects are of great value to the practitioner who is sure of his diagnosis and wants guidance on the finer points of therapeutics. The author of the present monograph has done his work well; his descriptions are lucid and his directions eminently practical. It is no fault of his that he is obviously ill at ease in recommending the use of atropine for iritis: the fear that the practitioner may be using the atropine for a case of acute glaucoma haunts his discussion on the treatment of iritis. The monograph is not elementary enough to suit the uninitiated, nor is it full enough to act as a reference-book for the expert. Its value is circumscribed not so much by the author's failings as by the limitations of the readers for whom it is intended.

Of the 117 pages, 54 are devoted to describing the various therapeutic measures used in ophthalmology and the methods of their application. The non-specific protein therapy finds a place with the author; injections of milk he considers of great value in gonorrhoeal ophthalmia, in iritis of rheumatic or gonoccocal origin, in post-operative infections, and in tuberculous lesions of the conjunctiva and cornea. The author deprecates the exaggerated claims made for this mode of treatment as bringing into disrepute a valuable therapeutic agent. The full discussion on the therapeutic agents is followed by chapters dealing systematically with the common affections of the eye. It is interesting to note that experience in Germany with iodine as a means of checking the evolution of cataract, has been as unsatisfactory as in this country. In the treatment of increased tension following on the instillation

of atropine in cases of iritis, the author advises the use of miotics; this is a point on which few surgeons in this country will agree with him.

Lidplastik und plastische Operationen anderer Weichteile des Gesichts. By Professor Dr. JOSEF IMRE. 81 pp, with 59 plates. "Stadium" Verlag., Budapest. Price, M. 24.

English-speaking ophthalmic surgeons are well served in the matter of text-books on the plastic surgery of ophthalmology by Spaeth's well-known newer methods of ophthalmic plastic surgery. They have also, of course, the classical work of Gillies to refer to. Still, the average ophthalmic surgeon is not an expert in this field on account of the comparative rarity of these conditions and the fact that each case represents a special problem to a much greater extent than the more usual conditions which engage the surgeon's daily attention. Whilst the general principles underlying plastic procedures may be the same in two cases, yet the actual performance of the operations can be very dissimilar. Text-books can therefore only deal with broad generalisations, leaving the details to the ingenuity of the operator. Most books do not fail to add that this ingenuity will often be taxed to the utmost.

In a sense the book under review is a contribution to the solution of those problems which are left to the operator's ingenuity. Fifty-nine plates containing 256 illustrations are presented to show how the difficulties that are likely to be met can be overcome. These plates are so clear, and the operative procedure is so well shown in adjoining sketches that they should be intelligible even to those who cannot read the German text. Some of the operations shown are undertaken to correct very extensive defects, yet the procedure adopted seems in every case to be of the simplest; this is a feature that recommends the book all the more strongly, especially to the inexpert. The author's favourite procedure is to mobilise his flap by undercutting the skin after he has made a somewhat semi-circular incision; to bring this semi-circular flap into position without undue tension and without destroying the natural folds of the skin, he makes a triangular defect at the far end of his semi-circular incision, so that when the flap is swung into its new position the triangular defect becomes obliterated. The formation of semi-circular flaps is an old principle: its combination with the formation of triangular defects seems to lead to highly satisfactory results in the author's hands, judging by his convincing plates.

In the introductory matter covering eighteen pages the author has some interesting things to say. Flaps need not be used exclusively in operations on the lids; for the upper lid Wolff grafts can

be used satisfactorily. The after-treatment of plastic operations, as is well known, requires the utmost care. The author applies a thick coat of boric acid power to his flap wounds; this tends to keep the suture lines dry and clean. The first dressing is done within 24-36 hours, and on the third day some sutures are removed; on the fifth or sixth day at the latest all sutures ought to be removed. The author deals with sutures with scant respect, as it is not their function to keep the flap in position; that must be achieved by planning the flaps so that they lie without tension. Exposure of the wound from the second day onward for four to five minutes daily to natural or artificial sunlight is considered of great advantage and is practised as a routine; the older method of dusting the wound over with an antiseptic and not bandaging it at all is, however, strongly deprecated. This method, which had some vogue after the war, the author has tried and given up.

This book, or atlas, to name it more correctly, satisfies a definite want, and does so very well indeed. That practically all the operations illustrated are carried out by flaps mobilised through a modified semi-circular skin incision combined with the making of a triangular defect, does not diminish the value of the work. On the contrary it gives the atlas a unity which is more gratifying than a multitude of diverse procedures. An English edition of this atlas ought to be very acceptable.

NOTES

Death

WE regret to record the death of Professor H. Sattler, of Leipzig, on November 15 last year at the age of 84 years. We hope to publish an obituary notice in a later number.

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Ophthalmological Society of the United Kingdom

THE Annual Congress will be held in London on April 11, 12, 13, 1929. The subjects for discussion are as follows:—

Thursday, April 11, at 2.30 p.m., "Heterophoria," to be opened by Dr. E. E. Maddox, Group Captain C. Clements, R.A.F., and Mr. C. Goulden.

Friday, April 12, at 8 p.m., "The Diagnosis and Treatment of Ocular Tuberculosis," to be opened by Sir Arnold Lawson, Dr. R. A. Young and Mr. S. H. Browning.

FUTURE ARRANGEMENTS

1929

February 1.—North of England Ophthalmological Society, at Liverpool.

February 8.—Section of Ophthalmology, Royal Society of Medicine.

March 1.—North of England Ophthalmological Society, at Newcastle-on-Tyne.

March 8.—Section of Ophthalmology, Royal Society of Medicine. (Clinical Meeting).

March 22.—North of England Ophthalmological Society, at Sheffield.

April 11-13.—Ophthalmological Society of the United Kingdom. (Annual Congress).

June 14.—Section of Ophthalmology, Royal Society of Medicine. (Annual Meeting).

July 4-5.—Oxford Ophthalmological Congress, at Oxford.

September 5-13.—**International Congress of Ophthalmology at Amsterdam.**

CONTEMPORARY OPHTHALMIC LITERATURE

Acta Ophthalmologica. Vol. VI, Part 3, 1928.

LARSSON. Research on dacryocystorhinostomy (Toti-Kuhnt operation).
GERTZ. The law of the images formed in the optical system.
GJESSING. Comparative determinations of refraction.
HEINONEN. Does school and occupation myopia follow from close work or is there another factor which is rendered active thereby?
LUNDSGAARD. Choroidal haemorrhage after cataract extraction.
HÄMÄLÄINEN and TERÄSKELI. Observations on the so-called methyl alcohol poisoning and its treatment.
BLEGRAD. A case of acute dacryoadenitis.
A case of a complete leucoma tattooed with gold chloride (Knapp).
HOLM. A case of spasmus nutans.

Zeitschrift für Augenheilkunde. *December, 1928.*

WILBRAND. Observations on flickering scotoma.
GASTEIGER. Researches into the course of dark adaptation following light adaptation with various spectral lights.
KAISER. Ephetonin and the eye.
MERKULOW. On X-ray treatment of granulomata.
BIRCH-HIRSCHFELD. Further contribution to the discussions by Herr Urbanek of my article "Light treatment of the eye."

Archivio di Ottalmologia. *October, 1928.*

ANGELUCCI. The phenomenon of sublimation in the art of Michelangelo, Wagner and Berlioz. (Continuation).
MAZZEI. Trachoma and tracolisina. (Continuation).

Bolletino d'Oculistica. *November, 1928.*

GALLENGA. On some cases of subepithelial rupture of the cornea from blows with a whip.
LODDONI. Juxtapapillary choroiditis in papilloedema from head injury.
ALAJINO. Occlusion of the ophthalmic veins following sub-pituitary injection of vaseline.
MARIOTTI. On a case of a rare and serious form of streptococcal pseudo-membranous conjunctivitis cured by autogenous vaccine.
ACCARDI. Peculiar bio-microscopic appearance of bilateral cataract in a malarial subject with jaundice and splenomegaly.

Revista Oto-Neuro-Oftalmologica. *September-October, 1928.*

FRIGERIO. A case of cyclical oculo-motor disorder.
MOSCARDI. Considerations on orbital phlegmon.
CATTANEO. Plastic posterior dacryocystorhinostomy.
ANTOGNOLI. Thrombophlebitis of the cavernous sinus of otitic origin.

Archivos de Oftalmologia de Buenos Aires. *September, 1928.*

VAZQUEZ BARRIÈRE. Examination of the changes in ocular motility by means of Hess's co-ordinometer.
ARGAÑARAZ. Surgical treatment of divergent strabismus.
BALADO and CRAMER. Multiple spongioblastoma of the occipital lobe.

October, 1928.

ARGAÑARAZ. Functional strabismus of infancy and a toxi-infectious illness possibly caused by a filtrable virus.
NATALE. Observations on two hydatid cysts of the orbit.
BARRIÈRE. Examination of the changes in ocular motility by means of Hess's co-ordinometer (continued).
SATANOWSKY. Epithelial tumours of the ciliary body. The dictyomas and their differentiation from gliomas.
MANEO. Small ocular symptoms as indications of nervous lesions.
DUSSELDORF. Encapsulated hernia of the vitreous at the site of a sclerotic puncture.

Archivos di Ottalmologia. *December, 1928.*

BLÁNCO. Ophthalmo-reciditives.
TRAPOTI. Inflammatory pseudo-tumours of the orbit.